Functional polymer surfaces by nanostructuring: From Fundamentals to Applications.

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The generation of controlled nanostructuring of polymer surfaces has been a challenge during the last decades. Surface nanostructuring based on the fabrication of nanoscale patterns on a homogeneous surface can be advantageous to obtain functional polymer materials[1]. Advanced nanolithography typically requires multiple-steps procedures involving clean-room facilities, high vacuum or complex mask fabrication. Alternatively, laser-based methods enable high spatial resolution patterning of soft polymeric matter and afford the sought versatility and reliability without the need of stringent ambient conditions. In this talk different approaches for nanostructuring polymer surfaces will be described. In particular, the possibilities of tuning the shape of the structures will be discussed since the control of the characteristics of the superficial structures can be crucial in order to target particular applications. Additionally, potential applications of surface nanostructured polymers for cell culture/alignment, surface enhanced Raman scattering sensors, ferroelectric memories or photovoltaics among others will be discussed[1-3].

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